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CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD

SAN FRANCISCO BAY REGION

ORDER NO. 89-112

SITE CLEANUP REQUIREMENTS FOR:

HEWLETT-PACKARD 10900 NORTH WOLFE ROAD  
CUPERTINO  
SANTA CLARA COUNTY

The California Regional Water Quality Control Board, San Francisco Bay Region (hereinafter called the Board), finds that:

1. Hewlett-Packard has owned and occupied this facility located at 10900 North Wolfe Road in Cupertino, Santa Clara County since 1969. Hewlett-Packard is hereinafter referred to as the discharger.

Historical operations consisted of integrated circuit manufacturing; these operations are currently being replaced by software development and administrative operations. The facility consists of nine buildings on approximately 95 acres.

2. The discharger installed two underground storage tanks: a 1,500 gallon steel waste solvent tank, and a 3,000 gallon epoxy coated steel waste hydrofluoric acid tank near Building 42 in 1973 as shown on attachment 1 of this order. The waste solvent tank was used for six years and no leaks were known to have occurred during this period. It is suspected that the waste acid tank may have leaked as early as 1976. The discharger estimates that a minimum of 6,000 gallons of waste acids had leaked from this tank. Both tanks were abandoned in place by filling with concrete in 1979.
3. Fuel was also stored on the site in two underground tanks; a 900 gallon unleaded gasoline tank and a 10,000 gallon diesel fuel tank. During the unleaded tanks excavation in 1982 a strong gasoline odor was noticed. Subsequently the tank was visually inspected for leaks and several soil samples were taken. The tank was found not to have leaked and a soil boring was constructed through the excavation and into the water table. Subsequent soil analysis from this boring did not detect fuel hydrocarbons, indicating that the problem was localized and did not extend to the water table. The evidence indicates that the source of the gasoline odor was the filler standpipe for the tank. The fiberglass diesel fuel tank was leak tested in 1985 and found to be tight. The discharger discontinued use of this tank and subsequently emptied it of its contents.
4. Chemical release investigations at the waste solvent tank and the waste hydrofluoric acid tank began in early 1983 with the

construction of a soil boring in the vicinity of these tanks.

Work completed at the site to date includes the construction of twenty groundwater monitoring wells and a vapor extraction pilot study for the soil. The groundwater monitoring consists of eight wells monitoring the shallow water bearing zone (A zone), nine wells monitoring the next deeper zone (B zone), and three wells monitoring the next deeper regional zone.

5. The groundwater investigation has identified three distinct flow zones beneath the site; the A and B flow zones and the deeper regional aquifer. The A and B zones are alluvially deposited coarse gravelly units which incline gently in a north easterly direction and are 50 to 100 feet in depth. The discharger considers both the A and B zone to be perched and several of the monitoring wells screened in these zones have been found to be dry during sampling events. Fine grained clayey units are present beneath these gravel units and consist of clay and fine to medium grained silty sand. These aquitards are believed to be laterally continuous throughout the site. The regional aquifer is located approximately 130 feet deep. The discharger's site is located in the confined zone as mapped by the Santa Clara Valley Water District.
6. Chemicals have been found in the unsaturated zone soils, and the seasonal groundwater of the A zone and the B zone. Chemicals detected in the unsaturated zone soils include TCE with concentrations ranging from 80 to 2900 ppb, and Freon 113 at 130 ppb. The lateral extent of chemical contamination in the groundwater of the A zone is limited to the parking area and extends approximately 200 feet toward the north east of the abandoned waste storage tanks. Concentrations of TCE in the A zone groundwater have been detected at 1,800 ppb and concentrations of perchloroethene (PCE) have been detected at 29 ppb. In the B zone concentrations of TCE at 18 ppb have been detected near the source area but quickly diminish to trace levels approximately 120 feet downgradient.
7. A pilot study was initiated on October 28, 1987 to extract vapor containing TCE and other volatile organic chemicals (VOC's) from the soil beneath the site. This study consisted of two vacuum extraction wells and was monitored for performance at thirteen wellheads.
8. After 13 months of operating the vacuum extraction system, the discharger estimates that approximately 11 pounds of TCE have been removed. Initially, the vacuum extraction system extracted about one tenth of a pound of TCE each day. Currently, the system daily removes less than two one-hundredths pounds of TCE. This removal reduction is caused in part because of the development of preferential pathways for the extraction of soil vapors. The discharger calculates that up to nine pounds remain in the soils. The discharger recommends ceasing operation of the soil gas extraction system for the following reasons:

- 1). The maximum depth of polluted soil is 50 feet compared to the depth to the A and B flow zones (50 to 100 feet) and the Regional aquifer zone (130 feet) indicates that there is little potential for further impacts to beneficial uses of groundwaters at the site.
  - 2). The risk to public health and the environment is minimal because the site is paved, minimizing infiltration of water to the chemical containing soils. Concentrations of TCE remaining in the soil range from 80 ppb to 2900 ppb near the source area. Concentrations of pollutants in the perched groundwater are extremely low.
  - 3). The current ineffectiveness of the vapor extraction system.
9. Based on current information, continued operation of the vacuum extraction system is not effective and cleanup of the soil appears complete given the current rates of removal and the technical infeasibility of modifying removal rates or instituting other soil cleanup methods for the relatively low concentrations of volatile organic chemicals remaining in deep soils.

Groundwater extraction is not feasible for the A and B zones. This is due to the seasonal saturation of both of these perched water bearing zones. Additionally, current chemical concentration data for the groundwater indicate that the subsurface chemical pollution has not migrated substantially from the source area, this is also due to the seasonal saturation of the A and B zones. For these reasons no groundwater remediation is recommended at this time.

10. Verification that groundwater pollution is migrating can be achieved with a groundwater monitoring program. Determination of any further remediation will be made based on a confirmed concentration increase in any of the self-monitoring program groundwater monitor wells over the historical concentrations for each of these wells.
11. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for South San Francisco Bay and contiguous surface and groundwaters.
12. The existing and potential beneficial uses of the groundwater underlying and adjacent to the discharger's facility include:
  - a. Industrial process water supply
  - b. Industrial service supply
  - c. Agricultural supply
  - d. Municipal and domestic supply
13. The discharger caused or permitted waste to be discharged or

deposited where it is or probably will be discharged to waters of the State and creates or threatens to create a condition of pollution or nuisance.

14. This action is an order to enforce the laws and regulations administered by the Board. This action is categorically exempt from the provisions of CEQA pursuant to Section 15321 of the Resources Agency Guidelines.
15. The effectiveness of protecting water quality by the soil cleanup achieved by the vacuum extraction system needs to be evaluated by a program of groundwater monitoring from existing monitoring wells. The need for any possible additional cleanup can be assessed based on the results of the monitoring program.
16. The Board has notified the dischargers and all interested agencies and persons of its intent under California Water Code Section 13304 to prescribe Site Cleanup Requirements for the discharges and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
17. The Board, at a public meeting, heard and considered all comments pertaining to this discharges.

IT IS HEREBY ORDERED, pursuant to Section 13304 of the California Water Code, that the dischargers shall cleanup and abate the effects described in the above findings as follows:

A. PROHIBITIONS:

1. The discharge of wastes or hazardous materials in a manner which will degrade water quality or adversely affect beneficial uses of the waters of the State is prohibited.
2. Further significant migration of pollutants through subsurface transport to waters of the State is prohibited.
3. Activities associated with the subsurface investigation and cleanup which will cause significant adverse migration of pollutants are prohibited.

B. SPECIFICATIONS:

1. The storage, handling, treatment or disposal of polluted soil or groundwater shall not create a nuisance as defined in Section 13050(m) of the California Water Code.
2. The dischargers shall conduct monitoring activities as needed to define the local hydrogeological conditions, and the lateral and vertical extent of the soil and groundwater pollution. Should monitoring results show evidence of plume

migration additional plume characterization of pollutant extent shall be required.

C. PROVISIONS:

1. The dischargers shall submit to the Board acceptable monitoring program reports containing results of work performed according to a program prescribed by the Board's Executive Officer.
2. The dischargers shall comply with Prohibitions A.1., A.2., and A.3., and Specifications B.1. and B.2. above, in accordance with the following time schedule and tasks:

COMPLETION DATE/TASK:

- a. COMPLETION DATE: November 16, 1989

TASK: **SAMPLING MONITORING WELL** Submit a technical report acceptable to the Executive Officer containing sampling results from groundwater monitoring wells as summarized in Table 1 of the self-monitoring program and describing sampling procedures.

Sampling reports shall be submitted semiannually thereafter on May 16 and November 16 until November 16, 1991 at which time the monitoring will continue on an annual basis until 1994.

- b. 1) COMPLETION DATE: December 16, 1994

TASK: **SUBMIT SUMMARY SAMPLING REPORT** Submit a technical report acceptable to the Executive Officer which includes a summary of all sampling results from the self-monitoring program including sampling dates, analytical methods and copies of all laboratory reports.

- c. 1) COMPLETION DATE: 30 days after receiving laboratory results indicating pollutant increases.

TASK: **MONITORING WELL POLLUTANT CONCENTRATION INCREASE** Submit a technical report acceptable to the Executive Officer documenting a increase in pollutant concentrations over historical concentrations at any monitoring well. The report shall include a workplan for compliance with Provision C.2.c.2. below.

- 2) COMPLETION DATE: 90 days after receiving laboratory results indicating pollutant increases.

**TASK: EVALUATION OF ALTERNATIVES TO REMEDIATE POLLUTANT PLUME** Submit a technical report acceptable to the Executive Officer which documents the source of the pollutant increase and extent of the pollution. This report shall also contain a proposal for additional measures to contain and remediate the pollutant plume if necessary and a time schedule for performing these measures.

- d. 1) COMPLETION DATE: two months prior to abandonment of monitoring and vapor extraction wells.

**TASK: MONITORING WELL ABANDONMENT PROPOSAL** Submit a technical proposal acceptable to the Executive Officer for monitoring well abandonment. This report should identify the specific wells to be abandoned, and the method of abandonment.

3. If the dischargers are delayed, interrupted or prevented from meeting one or more of the completion dates specified in this Order, the dischargers shall promptly notify the Executive Officer and the Board may consider revision to this Order.
4. The discharger shall identify any obstacles which may threaten compliance with the schedule of this Order and what actions are being taken to overcome these obstacles. In the event of non-compliance with Provision C.2. or any other Specification or Provision of this Order, written notification which clarifies the reasons for non-compliance and which proposes specific measures and a schedule to achieve compliance. This written notification shall identify work not completed that was projected for completion, and shall identify the impact of non-compliance on achieving compliance with the remaining requirements of this Order.
5. Semiannual reports commencing with the report due in November shall include, but need not be limited to, updated water table and piezometric surface maps for all affected water bearing zones, and appropriately scaled and detailed base maps showing the location of all monitoring wells, and identifying adjacent facilities and structures.
6. All hydrogeological plans, specifications, reports, and documents shall be signed by or stamped with the seal of a registered geologist, engineering geologist or professional engineer. This requirement shall not apply to monthly reports and quarterly progress reports provided the hydrogeological information contained in these reports has been submitted or is scheduled for submittal by a

registered geologist, engineering geologist, or professional.


7. All samples shall be analyzed by State certified laboratories or laboratories accepted by the Board using approved EPA methods for the type of analysis to be performed. All laboratories shall maintain quality assurance/quality control records for Board review.
8. The dischargers shall maintain in good working order, and operate, as efficiently as possible, any facility or control system installed to achieve compliance with the requirements of this Order.
9. Copies of all correspondence, reports, and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order, shall be provided to the following agencies:
  - a. Santa Clara Valley Water District
  - b. Santa Clara County Health Department
  - c. City of Cupertino
  - d. State Department of Health Services/TSCD

The Executive Officer may additionally require copies of correspondence, reports and documents pertaining to compliance with the Prohibitions, Specifications, and Provisions of this Order to be provided to a local repository for public use.

10. The dischargers shall permit the Board or its authorized representative, in accordance with Section 13267(c) of the California Water Code:
  - a. Entry upon premises in which any pollution sources exist, or may potentially exist, or in which any required records are kept, which are relevant to this Order.
  - b. Access to copy any records required to be kept under the terms and conditions of this Order.
  - c. Inspection of any monitoring equipment or methodology implemented in response to this Order.
  - d. Sampling of any groundwater or soil which is accessible, or may become accessible, as part of any investigation or remedial action program undertaken by the discharger.
11. The discharger(s) shall file a report on any changes in site occupancy and ownership associated with the facility described in this Order.

12. If any hazardous substance is discharged in or on any waters of the state, or discharged and deposited where it is, or probably will be discharged in or on any waters of the state, the discharger shall report such discharge to this Regional Board, at (415) 464-1255 on weekdays during office hours from 8 a.m. to 5 p.m., and to the Office of Emergency Services at (800) 852-7550 during non-business hours. A written report shall be filed with the Regional Board within five (5) working days and shall contain information relative to: the nature of waste or pollutant, quantity involved, duration of incident, cause of spill, Spill Prevention, Control, and Countermeasure Plan (SPCC) in effect, if any, estimated size of affected area, nature of effects, corrective measures that have been taken or planned, and a schedule of these activities, and persons/agencies notified.
13. The Board will review this Order periodically and may revise the requirements when necessary.

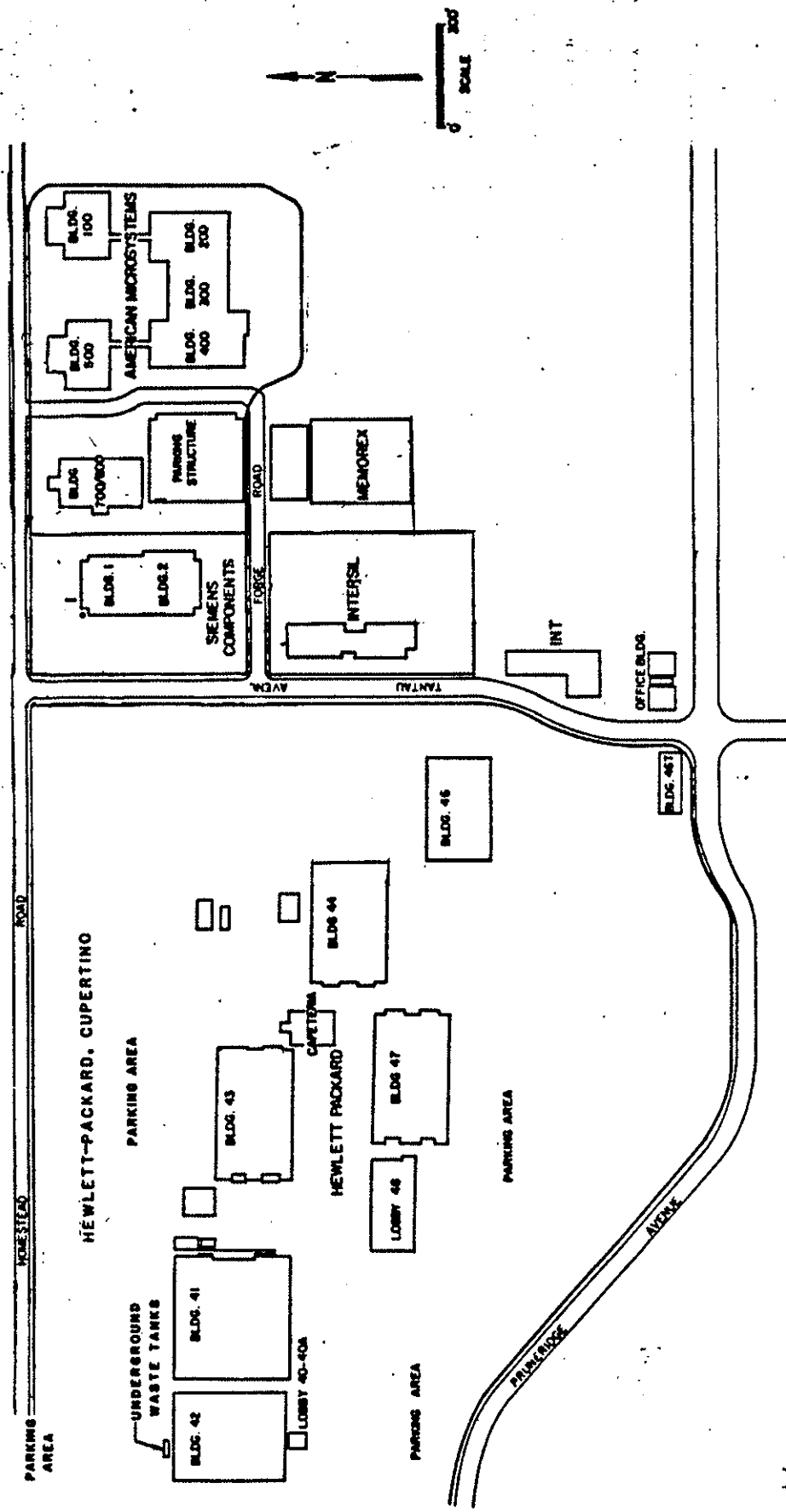
I, Steven R. Ritchie, Executive Officer, do hereby certify that the foregoing is a full, true and correct copy of an Order adopted by the California Regional Water Quality Control Board, San Francisco Bay Region, on June 21, 1989.



Steven R. Ritchie  
Executive Officer



# SITE MAP



CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD  
SAN FRANCISCO BAY REGION

HEWLETT-PACKARD  
10900 NORTH WOLFE ROAD  
GROUNDWATER SELF-MONITORING PROGRAM

A. GENERAL

Reporting responsibilities of waste dischargers are specified in Sections 13225(a), 13267(b), 13268, 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16.

The principal purposes of a waste discharger's monitoring program, also referred to as a self-monitoring program, are: (1) To document compliance with waste discharge requirements and prohibitions established by this Regional Board, (2) To facilitate self-policing by the waste discharger in the prevention and abatement of pollution arising from waste discharge, (3) To develop or assist in the development of effluent or other limitations, discharger prohibitions, national standards of performance, pretreatment and toxicity standards, and other standards, and (4) To prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the EPA Method 8000 series described in "Test Methods for Evaluating Solid Wastes, Physical/Chemical Methods", dated November 1986; or other methods approved and specified by the Executive Officer of this Regional Board.

C. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Violations of Requirements

In the event the discharger is unable to comply with the conditions of the site cleanup requirements and prohibitions due to:

- a. maintenance work, power failures, or breakdown of waste treatment equipment, or
- b. accidents caused by human error or negligence, or
- c. other causes such as acts of nature, or
- d. poor operation or inadequate system design.

The discharger shall file a written technical report at least 15 days prior to advertising for bid on any construction project which would cause or aggravate the discharge of waste in violation of requirements; said report shall describe the nature, costs and scheduling of all action necessary to preclude such discharge.

In addition, if the noncompliance caused by items (a), (b), (c) or (d) above is with respect to any of the order's limits, the waste discharger shall promptly accelerate the monitoring program to monthly or as required by the Board's Executive Officer for those constituents which have been violated. Such analysis shall continue until such time as the effluent limits have been attained, or until such time as the Executive Officer determines to be appropriate. The results of such monitoring shall be included in the regular Self-Monitoring Report.

2. Bypass Reports

Bypass reporting shall be an integral part of the regular monitoring program report. A report on bypassing of untreated units shall be made which will include cause, time and date, duration and estimated volume bypassed, method used in estimating volume, and persons and agencies notified. Notification to the Regional Board shall be made immediately by telephone (415-464-1255), followed by a written account within 15 days.

3. Self-Monitoring Reports

a. Reporting Period:

- (1). Written reports shall be filed regularly each semi-annual period within forty-five days from the end of the period monitored.

b. Letter of Transmittal:

A letter transmitting self-monitoring reports shall accompany each report. Such a letter shall include a discussion of requirement violations found during the reporting period and actions taken or planned for correcting any requirement violation. If the discharger has previously submitted a detailed time schedule for correcting requirement violations, a reference to this correspondence will be satisfactory. Monitoring reports and the letter transmitting reports shall be signed by either a principal executive officer or his duly authorized employee. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true and correct.

c. Data Results:

- (1). Results from each required analysis and observation shall be submitted in the semi-annual self-monitoring regular reports. All chromatographic peaks for purgeable halocarbons and/or volatile organics shall be identified and quantified in the regular reports, if a peak is identified in two consecutive samples. A GC/MS analysis shall be performed and all peaks identified and reported on each well according to Table 1 and on each new well immediately after installation and well development.

Results shall also be submitted for any additional analyses performed by the dischargers at the specific request of the Board for parameters for which effluent limits have been established and provided to the dischargers by the Board.

- (3). The semi-annual report shall also identify the analytical procedures used for analyses either directly in the report or by reference to a standard plan accepted by the Executive Officer. Any special methods shall be identified and should have prior approval of the Board's Executive Officer.
- (4). Hewlett-Packard shall describe, in the semi-annual SMR, the reasons for significant increases in a pollutant concentration at a well onsite. The description shall include:
  - 1). the source of the increase,
  - 2). how Hewlett-Packard determined or will investigate the source of the increase, and
  - 3). what source removal measures have been completed or will be proposed.
- (5). Original lab results shall be retained and shall be made available for inspection for three years after origination or until after all continuing or impending legal or administrative actions are resolved.
- (6). A map shall accompany the quarterly report, showing all sampling locations.
- (7). Hewlett-Packard shall describe in the semi-annual monitoring report the effectiveness of the actions taken to regain compliance if compliance is not achieved. The effectiveness evaluation shall include the basis of determining the effectiveness, water surface elevations for each well used to determine water surface elevation contours and water quality data.
- (8). The annual report shall be combined with the fourth quarter regular report and shall include cumulative data for the current year. The annual report for December shall also include minimum, maximum, median and average water quality data for the year.

d. SMP Revisions:

Additional long term or temporary changes in the sample collection frequency and routine chemical analysis may become warranted as monitoring needs change. These changes shall be based on the following criteria and shall be proposed in a

quarterly SMR. The changes shall not be implemented until approved by the Executive Officer.

Criteria for SMP revision:

- (1). Discontinued analysis for a routine chemical parameter for a specific well after a one-year period of below detection limit values for that parameter.
- (2). Changes in sampling frequency for a specific well after a one-year period of below detection limit values for all chemical parameters from that well.
- (3). Temporary increases in sampling frequency or changes in requested chemical parameters for a well or group of wells because of a change in data needs (e.g., evaluating groundwater extraction effectiveness or other remediation strategies).

D. DESCRIPTION OF SAMPLING STATIONS  
Groundwater


<u>Stations</u>	<u>Description</u>
Listed in Table 1	Monitoring wells, observation wells, and extraction wells.

E. SCHEDULE OF SAMPLING AND ANALYSIS

The schedule of sampling and analysis shall be given in Table 1.

I, Steve R. Ritchie, Executive Officer, hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedure set forth in this Regional Board's Resolution No. 73-16 in order to obtain data established in Regional Board Order No. 89-112.
2. Is effective on the date shown below.
3. May be reviewed at any time subsequent to the effective date upon written notice from the Executive Officer or request from the discharger and revisions will be ordered by the Executive Officer.

  
Steven R. Ritchie  
Executive Officer

Effective Date: June 21, 1989  
Attachments: Table 1

TABLE 1  
SCHEDULE FOR SAMPLING, MEASUREMENTS, AND ANALYSIS

SAMPLING STATION >>>  8B  20B  14R	
TYPE OF SAMPLE	G
Flow Rate (gal/day)	
pH (units)	
Temperature (deg. C)	
EPA 8010 for: purgeable priority pollutants	2/Y (until Nov 16, 1991)
EPA 8010 for: purgeable priority pollutants	1/Y (after Nov 16, 1991)
GC/MS Scan(EPA 8240)	1/Y*

LEGEND FOR TABLE 1

G = grab sample  
 D = once each day  
 M = once each month  
 Q = quarterly, once in February, May, August and November  
 M/Q = monthly for three months at startup of operation;  
       reduced to quarterly thereafter  
 2/Y = Once in March and once in September  
 1/Y = once per year

\* EPA 8010 not required for months when EPA 8240 is performed.